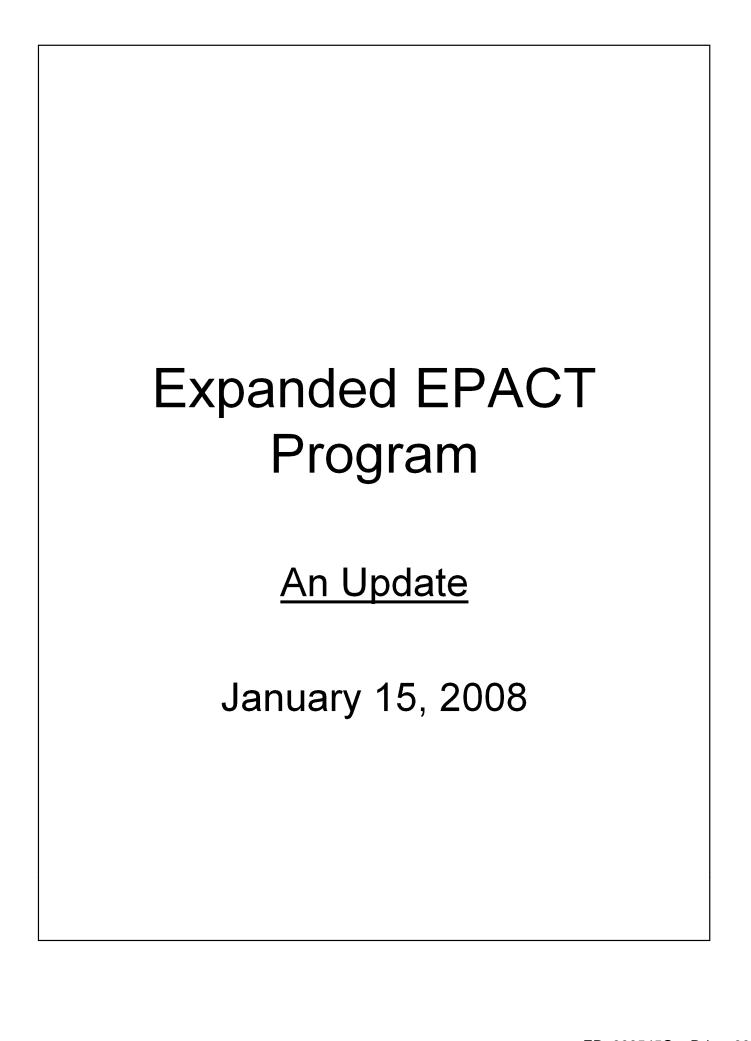
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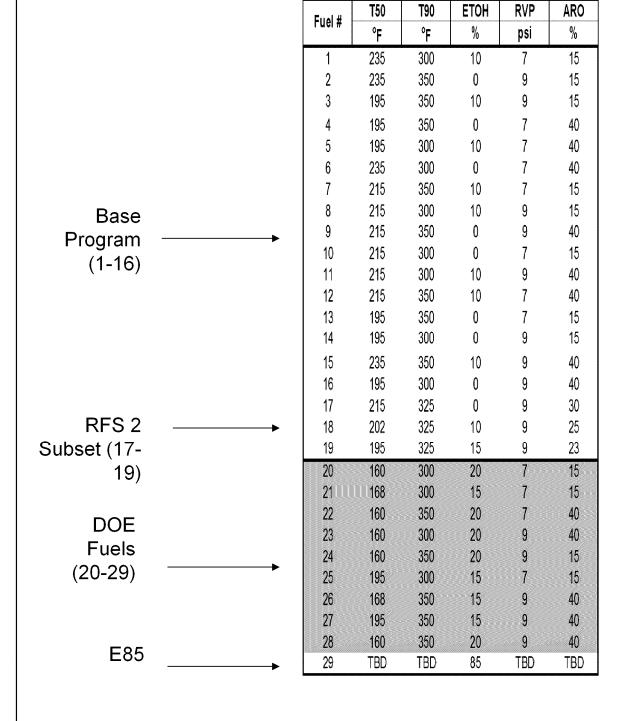
Base EPAct Program Design

- Tier 2 fuel effects (RVP,T50,T90, Aromatics, EtOH)
- "RFS 2 Pilot" to precede main program
 - Three additional, in-use E0, E10, E15 fuels tested in all 19 vehicles at 75°F and 50°F
 - RFS 2 testing from early April till end of June, 2008
- 16 fuels, 19 vehicles in main program
- Estimated cost (Dec. 20, 2007): Non-responsive vs. previous EPA estimate of Non-responsive
 - Discussions underway with SWRI to reduce program cost
- Base Program Timeline, w/o safety margin
 - Jan. 2008 March 2008: Fuel blending, vehicle recruiting
 - April 2008 December 2008: Emissions testing
 - December 2008 February 2009: Reporting
- The Base Program is already moving forward
- Lubrizol has committed to provide lubricant support for this program

Expanded EPAct Program

- Met with NREL in Ann Arbor on January 9 to discuss the design of the Expanded EPAct Program
- NREL has been authorized by DOE to plan for an up to \$2.0M expansion of EPAct Program
 - \$0.9M has been made available to NREL from DOE's Biomass Program for use in expanding the EPAct Study
 - NREL has already received a funding letter from DOE for this amount
 - Additional \$1.1M is expected to become available shortly from DOE's Vehicle Technology Program
 - · Funding letter expected in March
- NREL will sign sole source contracts with SWRI to cover expansion of the EPAct Program
- Expanded fuel matrix includes 29 fuels
- 22 vehicles used in Phases 1 & 2, 19 vehicles in Phase 3
- DOE would also like to fund limited PM speciation work
- Lubrizol has committed to provide lubricant

Expanded Fuel Matrix



Timeline

Phase	# of Tests	# of Weeks	Duration	
			From	То
Fuel blending	-	22	2-Jan	31-May
Phase 1 (75°F)	135	5	1-Apr	6-May
50°F Switchover	-	2	7-May	20-May
Phase 2 (50°F)	135	7.5	21-May	11-Jul
Phase 3 (75°F)	1243	46	14-Jul	29-May-09
Reporting	-	12	1-Jun-09	31-Aug-09

No margin of safety

Program Cost

Base EPAct Program (19 fuels, 19 vehicles)

est Total Cost	Cost per Test	# of Emission Tests	# of Vehicles	# of Fuels	Phase
		117	19	3	1
4 - CBI		117	19	3	2
4 - CDI	EX. 4	623	19	16	3
		857			

Expanded EPAct Program (29 fuels, 19 + 3 vehicles)

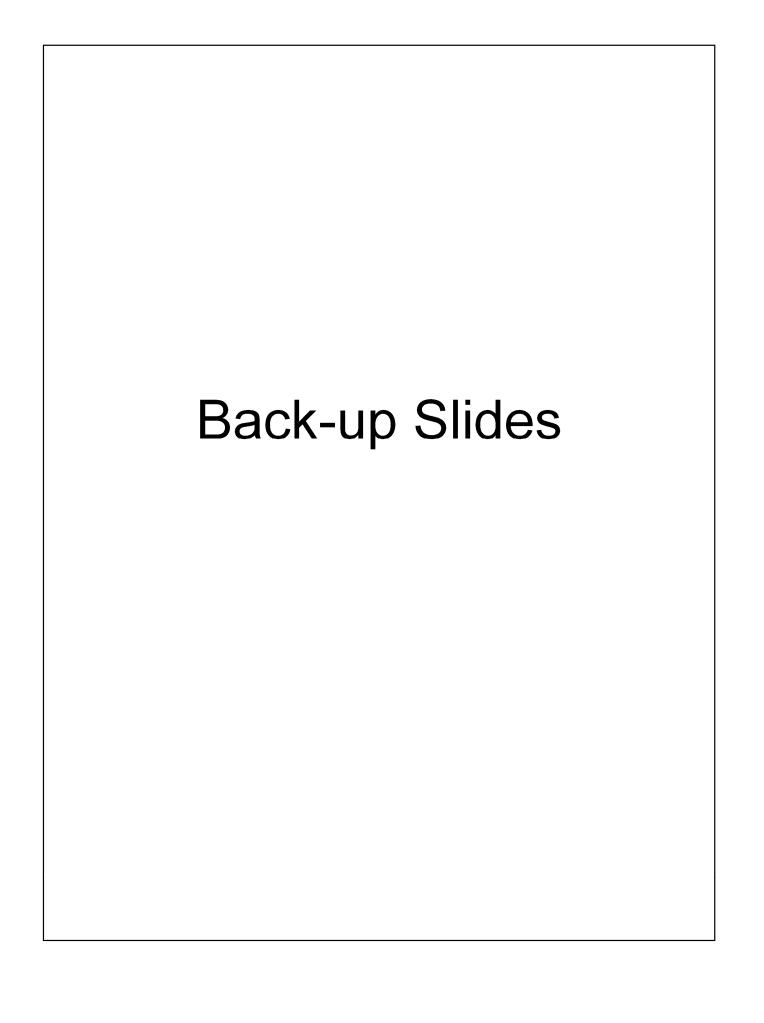
Phase	# of Fuels	# of Vehicles	# of Emission Tests	Cost per Test, \$	Total Cost, \$
1	3	22	135		
2	3	22	135		CDI
3	25+E85	19	982	∏ CX. 4	- CBI
			1252		

Note: Calculations assume 2.05 replicates per each fuel/vehicle combination

- Both cost estimates based on SWRI proposal received on Dec. 20
- · Some costs will go up, e.g. test fuel blending
- Program cost negotiations with SWRI are in progress
- Cost reduction of Base EPAct Program by Ex. 4 - CBI is likely

Most Pressing Issues

- Make sure EPAct Program is launched and completed on time
 - Alert SWRI management to the needs of EPAct Program
 - Jeff White; Director; Light-Duty and Unregulated Emissions Section?
 - Nigel Gale; Vice President; Engine, Emissions and Vehicle Research?
 - Alert Haltermann (fuel supplier) management to the needs of EPAct Program
 - Wayne Peterson, Commercial Director
 - If blending of fuels 17-19 is not accelerated in Haltermann's work schedule, Phase 1 testing will not start on April 1, 2008
 - E15 T50 issue must be resolved ASAP
 - Meet w/Wayne Peterson of Haltermann in Ann Arbor the wk of January 28 to drive home the message
 - Finalize the design of the expanded EPAct Program in collaboration with NREL
- Complete cost negotiations with SWRI and approve their proposal



Test Program Design

- Design similar to Base EPAct Program
 - Phase 1: RFS 2 Pilot at 75°F
 - 3 fuels (E0, E10, E15) as in base program
 - 19 vehicles as in base program + 3 high emitter/mileage vehicles
 - Phase 2: RFS 2 Pilot at 50°F
 - 3 fuels (E0, E10, E15) as in base program
 - 19 vehicles as in base program + 3 high emitter/mileage vehicles
 - Phase 3: Main Program
 - 26 fuels
 - 16 fuels as in base program + 9 additional fuels + E85
 - 19 vehicles as in base program
 - Same parameters measured as in base program
 - Exception: Limited PM speciation in Phases 1 and 2